

REMARKS

In view of the foregoing amendments and following remarks, reevaluation and further processing of the application is requested. Prior to amendment herewith, Claims 10-18 were pending in the application. By amendment herewith, Claim 10 has been amended. Claims 10-18 remain pending in the application.

In the Office Action, the Examiner objected to the Specification for citation of an incorrect patent number in the background section. Applicant has amended the Specification to correct the erroneous citation. The correct patent number of 4,099,959 is now listed.

The Examiner has rejected all pending claims as being obvious in view of Applicant's statement in paragraph [0002] of the application that it was known to pass carbothermic off-gases counter-current to a bed of carbon particles, further in view of PCT Publication No. WO 96/37287 by Tiberg et al. ("Tiberg"). The Examiner states that Tiberg teaches that it was known in the countercurrent art to introduce particulate material through a vertically moveable supply pipe in order to adjust both the height of the bed of particulate material and the height of the supply pipe with respect to the reactor column, where the particulate material is discharged from the column through the bottom of the reactor, and where the off gas is introduced through nozzles placed tangentially in a lower part of the column in order to increase reaction efficiencies between the particulate and the gas. The Examiner states that because the admitted prior art would desire improved reaction between the carbon and the off gas, "motivation to employ particulate introduction adjustment and discharge steps, as well as the tangential gas introduction step disclosed by [Tiberg] as advantageous in counter current reactors in the counter current reactor process disclosed by the admitted prior art of the instant disclosure would have been a modification obvious to one of ordinary skill in the art at the time the invention was made." Applicant respectfully traverses this rejection.

To establish a *prima facie* case of obviousness, the prior art must, *inter alia*, teach or suggest all claim limitations. *In re Kahn*, 441 F.3d 977, 987-988 (Fed. Cir. 2006). The teaching may be implicit from the prior art as a whole, rather than expressly stated in the references. *Id.*, citing *In re Kotzab*, 217 F.3d 1365 (Fed. Cir. 2000). The test for an implicit showing is what the combined teachings, knowledge of one of ordinary skill in the art, and the nature of the problem to be solved as a whole would have suggested to those of ordinary

skill in art. Id. In considering motivation in the obviousness analysis, the problem examined is not the specific problem solved by the invention but the general problem that confronted the inventor before the invention was made. Id. Therefore, the motivation-suggestion-teaching test asks not merely what the references disclose, but whether a person of ordinary skill in the art, possessed with the understandings and knowledge reflected in the prior art, and motivated by the general problem faced by the inventor, would have been led to make the combination cited in the claims. Applicant submits that, in this case, the nature of the problems being solved are sufficiently different that one of ordinary skill in the art would not have been led to the solution presented by the instant invention.

Tiberg is related to methods of creating efficient contact between solid materials and gases. (pp. 1, lines 6-8). In doing such, Tiberg utilizes a granular bed 1 and a telescopic tube 13 to vary the top level of the bed (pp. 2, lines 39-40). Tiberg further discloses that the thickness of his particulate bed may equal over the whole area, but deviations can occur, such as if the grain size of the granulates varies as larger grains more readily concentrate toward the periphery of the slide cone. (Page 3, lines 4-7) Applicant submits that, if this deviation occurs, the gas will flow near the periphery of the cone, rather than the center, since gases will follow the path of least resistance¹. In this case, the path of least resistance would be the periphery of the cone, which would likely result in an uncompleted chemical reaction of the gas, but not the solid. Hence, it appears that Tiberg solves a problem related to the supply of solid materials.

Conversely, the present invention is concerned with methods and devices for treating off gases from the carbothermic production of aluminum with the goal of maintaining the retention time of the off gas in a bed of particulate carbon. (Para. 0004). In a carbothermic reactor, the amount of off gas and pressure in the reactor fluctuates. To accomplish such, the present invention varies the height of the bed of particulate carbon in response to the varying amount and varying pressure of the off gas that enters the gas cleaning chamber from the carbothermic reactor in order to maintain a stable retention time of the off gas in the bed of particulate carbon. Thus, even though Tilberg's device may comprise a telescopic supply tube for granules, making it possible to vary the height of Tilberg's bed, Tiberg does not

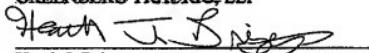
¹ See: http://en.wikipedia.org/wiki/Path_of_least_resistance

disclose, teach or suggest adjusting the height of a bed of particulate carbon to maintain an approximately constant retention time of said off gas in said particulate carbon independent of the amount of pressure of the off gas supplied, as recited in Amended Independent Claim 1.

In light of the above remarks, it is believed that the application is now in condition for allowance, and such action is respectfully requested. Should the Examiner feel that a telephone call would expedite prosecution, the Examiner is invited to contact the undersigned.

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